

Compliance Status of Environmental Clearance Conditions accorded by MoEF for the Expansion Project of Rawan Limestone Mine from 2.06 MTPA to 6.31MTPA of M/s Ambuja Cements Ltd. Located at P.O. Rawan, Tehsil: Baloda Bazar, District Raipur, Chhattisgarh

Ref.no. J-11015/330/2006-IA II (M)

Date: 8th June 2007

Sr. No.	EC Conditions	Action taken /Compliance Status
A. Specific Conditions		
i.	Top soil shall be stacked properly with proper slope with adequate safeguards and shall be backfilled for reclamation and rehabilitation of mined out area.	Top soil is stacked separately for future utilization and it is being re-handled for reclamation and rehabilitation of mined out area and for green belt development.
ii.	Over burden shall be stacked at earmarked dump site(s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 20 m each stage shall preferably be of 10 m and over all slope of the dump shall not exceed 26°. The reverse slope shall be maintained to prevent wash off and water logging during rainy season. The mine pit area shall be reclaimed by back filling the OB in a phased manner. The OB dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall submit to the Ministry Of Environment & Forests on six month basis.	<p>Being complied.</p> <p>The overburden dumps are having maximum height of 20m and overall slope of 26° is being maintained. The OB is stacked at non mineralized area. Inactive OB dumps are being stabilized by coir matting followed by plantation of native plant species.</p> <p>Six monthly compliance is being submitted regularly to MoEF Regional Office, Nagpur.</p> <p>Last compliance report was submitted vide letter no. ACL/BYT/EMD/April-Sept2017/131 dated 09.12.2017</p>
iii.	Garland drains shall be constructed to arrest silt and sediment flows from soil, and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for both mine pit and for waste dump and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate	<p>Being Complied.</p> <p>Garland drains are constructed around the dumps to arrest silt and sediment flows. The drains are connected to a settling tank and/or mine pits and accumulated water is being used for dust suppression and plantation.</p> <p>De-silting of garland drains is carried out at regular intervals.</p>

Sr. No.	EC Conditions	Action taken /Compliance Status
	retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.	
iv.	Controlled drilling and blasting shall be done by using dust extractors/wet drilling.	Controlled blasting using delay detonators is being practiced. Drilling is carried out with drill machines equipped with dust arrestors.
v.	Plantation shall be raised in an area of 98.04 ha including green belt of adequate width by planting the native species around the ML area, roads, OB dump sites etc. in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.	Being complied. Phase wise plantation is being carried out in safety zone, along roads and on inactive OB dumps as shown in Annexure I . The density of plantation is maintained at around 2500 plants per ha.
vi.	The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Being complied. The rainwater accumulate in the mines pit percolate to the ground thereby recharging the ground water table. Water for dust suppression and plantation in the mining area is supplied from STP in the cement plant colony and from mines pit, thereby conserving the ground water resources. A washing bay is installed for atomized washing of heavy vehicles. Treated water from vehicle wash water is reused for greenbelt development and dust suppression.
vii.	Regular monitoring of ground water level and quality shall be carried out by establishing well and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year – pre-monsoon (April-May), monsoon (August), Post Monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.	Three Piezometers are established in the ML area and in Plant area. Ground water level & quality is being monitored regularly. Water level monitoring and water quality analysis results for the period of Oct'17 to March'18 are enclosed as Annexure III
viii.	Prior permission from the competent authority shall be obtained for drawl of ground water, if any.	Being complied.
ix.	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining	Vehicles used for mineral transportation are maintained periodically to control exhaust

Sr. No.	EC Conditions	Action taken /Compliance Status
	operations and in transportation of mineral. The vehicles shall be covered with a tarpaulin and shall not be overloaded.	emissions. Vehicles transporting minerals are covered with tarpaulin and overloading is strictly prohibited. Vehicular emission is being regularly monitored.
x.	A final mine closure plan, along with details of corpus fund, shall be submitted to the Ministry Of Environment & Forests 5 years in advance of final mine closure for approval.	Noted for compliance. Final mine closure plan, along with details of corpus fund, will be submitted to MoEF 5 years in advance of final mine closure.
B. General Conditions		
i.	No change in mining technology and scope of working shall be made without prior approval of the Ministry Of Environment & Forests.	No change in mining technology and scope of working will be made without prior approval of MoEF.
ii.	No change in the calendar plan including excavation, quantum of mineral limestone ore shall be made.	Limestone is being produced as per the calendar plan and EC permission.
iii.	Conservation measures for protection of flora and fauna in the core and buffer zone shall be drawn up in consultation with the local forest and wildlife department.	Noted & being complied. Thick plantation using local flora species is being carried out on safety zone, along transport roads and on inactive dumps. Fencing of the mining area is being carried out to avoid inadvertent entry of persons/animals.
iv.	Four ambient air quality-monitoring stations shall be established in the core zone as well as in the buffer zone for RPM, SPM,SO ₂ , NO _x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State pollution Control Board.	Six Ambient Air quality monitoring locations have been established in the core zone, plant area and in buffer area. Regular air quality monitoring is being carried out and the results of the same are attached as Annexure II .
v.	Data on ambient air quality (RPM, SPM, SO ₂ and NO _x) should be regularly submitted to the Ministry including its regional office located at Bhopal and the State Pollution Control Board/ Central Pollution Control Board once in six months.	Ambient air quality is regularly monitored and reports are submitted to Regional office of MoEF & CECB& CPCB. The air quality monitoring report for the period –October-2017 to March-2018 is given in Annexure II .
vi.	Fugitive dust emissions from all the sources shall be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points shall be provided and	Mobile water sprinklers are provided for periodic water sprinkling on haul roads, loading and unloading points, etc. Regular water sprinkling is being

Sr. No.	EC Conditions	Action taken /Compliance Status
	properly maintained.	carried out at fugitive dust emission sources to control dust emissions.
vii.	Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc shall be provided with ear plugs/muffs.	Periodic maintenance of machinery used in mines is carried out to control noise below 85 dBA. Workers engaged in drilling & HEMM operations are provided with ear plugs/Muffs. Periodic noise level monitoring is conducted in the mines. Results are given in Annexure II .
viii.	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.	There is no process effluent generation in the mines. Effluent from workshop in the mine is treated in Oil and Grease trap system provided in the workshop. Surface run-off from the broken up area is collected in settling tank/mine pits and is used for dust suppression and plantation.
ix.	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.	Protective Respiratory Devices (dust masks) are provided & safety appliances are being used by the workers. Shoes, dust mask, helmet,& ear plug, have been provided & pre-employment and refresher safety training is being given to all the workers.
x.	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Occupational health surveillance program for the workers are undertaken periodically.
xi.	A separate environmental management cell with suitable qualified personnel shall be set-up under the control of a senior executive, who will report directly to the Head of the organization.	Environmental Management Cell has been established under supervision of Environmental Manager. The Environmental Manager directly reports to the Unit Head.
xii.	The project authorities shall inform to the Regional Office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date	Complied Annual financial closures is on 31 st December • Environmental Clearance granted

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	of start of land development work.	by MOEF vide letter no. J-11015/330/2006-IA II (M) date:08.06.2007 • Mine is in operation since 1984.
xiii.	The fund earmarked for environmental protection measures shall be kept in separate account and should not be diverted to other purpose. Year wise expenditure shall be reported to the Ministry and its regional office.	Noted & being complied.
xiv.	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	Noted and being complied.
xv.	A copy of clearance letter will be marked to concerned Panchayat/local NGO, if any, from whom suggestion/representation has been received while processing the proposal.	Complied.
xvi.	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.	Complied.
xvii.	The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at the website of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same shall be forwarded to the Regional Office of this Ministry located in Bhopal.	Complied.
5.	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environmental protection.	Noted.
6.	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted.

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7.	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974. The Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986. Hazardous Wastes(Management and Handling) Rules, 2003 and the Public (insurance) Liability Act, 1991 along with their amendments and rules.	Noted

ANNEXURE I

Plantation Done in Mining Area

&

Plantation Done Along PWD Road





ANNEXURE II
Monitoring Results
(Air, Water, Noise, Ground Water Level)

MONTH –October-2017

AMBIENT AIR MONITORING REPORT

Monitoring Station	Avg. PM ₁₀ (µg/m ³)	Avg. PM _{2.5} (µg/m ³)	Avg. SO ₂ (µg/m ³)	Avg. NO _x (µg/m ³)	Avg. CO (µg/m ³)
Khairtal Village	43.3	19.8	9.6	16	BDL
Kukurdi Village	47.8	22.5	8.4	15.9	BDL
Guest House	47.6	12.6	6.5	12.7	BDL
Water Treatment Plant	41.5	18.9	6.7	10.6	BDL
Mines Field Office	53	23.9	8.7	13.5	BDL
Railway Operation	36.9	16.9	10	16.8	BDL

BDL: Below Detectable level

STACK MONITORING REPORT

Monitoring Station	Particulate Matter (mg/Nm ³)
Kiln Stack (Line- 1)	9.21
Crusher Stack (Line- 1)	18.5
Cooler (Line- 1)	20
Coal Mill (Line- 1)	24.7
Cement Mill – 1	17.7
Cement Mill – 2	11.6
Cement VRPM stack	Didn't Run in the month
Cement Mill- 3	14.3
Kiln Stack (Line- 2)	9.76
Crusher Stack (Line- 2)	22.7
Coal Mill (Line- 2)	22.7
Cooler (Line- 2)	21.7
DG – 04 MW	Didn't Run in the month
TPP- 15 MW (Old)	Didn't Run in the month
TPP- 33 MW	23.5
TPP- 15 MW (New)	36.5

AMBIENT NOISE LEVEL REPORT

Location	Noise Level (dB)	
	Day Time (dB)	Night Time (dB)
Plant Canteen Area	63.8	62.6
Colony	53.6	47.4
Near Old CCR Building	70.4	67.3
Near New CCR Building	70.9	66.8
Mines Field Office	64.2	63.7
Mines Office	68.1	56.9
TPP area	69.4	65.5
Main office	64.2	63.7

WATER QUALITY REPORT

EFFLUENT QUALITY							
	pH	COD	BOD	Oil & Grease	S.S.	TDS	Remark
STP (treated)	8.67	36.1	3.10	< 0.2	2	598	
Mines Work Shop (treated)	7.7	28.1	3.10	< 0.2	< 2	278	
TPP DM Plant back wash (RO installed)	6.21	12	< 2	< 0.2	< 2	24	

Note: All parameters are in mg/l except pH.

ENV/EMR

MONTH –November-2017

AMBIENT AIR MONITORING REPORT

Monitoring Station	Avg. PM ₁₀ (µg/m ³)	Avg. PM _{2.5} (µg/m ³)	Avg. SO ₂ (µg/m ³)	Avg. NOx (µg/m ³)	Avg. CO (µg/m ³)
Khairtal Village	58.3	28.8	9.12	17.1	BDL
Kukurdi Village	62.6	33.6	9.14	14.1	BDL
Guest House	59.3	27.1	6.84	15.2	BDL
Water Treatment Plant	52.6	26.1	8.61	16.8	BDL
Mines Field Office	46.3	22.2	7.58	15.4	BDL
Railway Operation	54.4	26.8	8.21	16.7	BDL

BDL: Below Detectable level

STACK MONITORING REPORT

Monitoring Station	Particulate Matter (mg/Nm ³)
Kiln Stack (Line- 1)	14.3
Crusher Stack (Line- 1)	21.6
Cooler (Line- 1)	22.5
Coal Mill (Line- 1)	24.3
Cement Mill – 1	24.6
Cement Mill – 2	23.5
Cement VRPM stack	Didn't Run in the month
Cement Mill- 3	23.8
Kiln Stack (Line- 2)	18.3
Crusher Stack (Line- 2)	24.7
Coal Mill (Line- 2)	20.7
Cooler (Line- 2)	24.7
DG – 04 MW	Didn't Run in the month
TPP- 15 MW (Old)	Didn't Run in the month
TPP- 33 MW	26.6
TPP- 15 MW (New)	27.5

AMBIENT NOISE LEVEL REPORT

Location	Noise Level (dB)	
	Day Time (dB)	Night Time (dB)
Plant Canteen Area	68.7	63.5
Colony	55.6	47
Near Old CCR Building	69.1	66.5
Near New CCR Building	70.6	69.3
Mines Field Office	66.4	49.3
Mines Office	64.2	47.9
TPP area	70.6	66.4
Main office	67.6	63.2

WATER QUALITY REPORT

EFFLUENT QUALITY							
	pH	COD	BOD	Oil & Grease	S.S.	TDS	Remark
STP (treated)	8.69	48.4	4.70	0.08	4	686	
Mines Work Shop (treated)	9.77	44.4	5.4	0.12	5	490	
TPP DM Plant back wash (RO installed)	8.02	8.06	<2.0	< 0.02	<2.0	36	

Note: All parameters are in mg/l except pH.

ENV/EMR

MONTH –December-2017

AMBIENT AIR MONITORING REPORT

Monitoring Station	Avg. PM ₁₀ (µg/m ³)	Avg. PM _{2.5} (µg/m ³)	Avg. SO ₂ (µg/m ³)	Avg. NO _x (µg/m ³)	Avg. CO (µg/m ³)
Khairtal Village	54.9	26.3	8.29	17.2	BDL
Kukurdih Village	60.2	27.5	8.71	17.2	BDL
Guest House	57.9	24.6	8.69	17.9	BDL
Water Treatment Plant	54.9	27.6	10	18.1	BDL
Mines Field Office	58.6	25.2	8.25	16.4	BDL
Railway Operation	59.4	27.9	9.51	17.6	BDL

BDL: Below Detectable level

STACK MONITORING REPORT

Monitoring Station	Particulate Matter (mg/Nm ³)
Kiln Stack (Line- 1)	22.2
Crusher Stack (Line- 1)	23.1
Cooler (Line- 1)	24.9
Coal Mill (Line- 1)	23.8
Cement Mill – 1	22.8
Cement Mill – 2	27.2
Cement VRPM stack	Didn't Run in the month
Cement Mill- 3	21.2
Kiln Stack (Line- 2)	16.8
Crusher Stack (Line- 2)	26.7
Coal Mill (Line- 2)	19.4
Cooler (Line- 2)	24.5
DG – 04 MW	Didn't Run in the month
TPP- 15 MW (Old)	23.9
TPP- 33 MW	24.5
TPP- 15 MW (New)	31

AMBIENT NOISE LEVEL REPORT

Location	Noise Level (dB)	
	Day Time (dB)	Night Time (dB)
Plant Canteen Area	68.7	64.7
Colony	53.7	44.6
Near Old CCR Building	68.7	67.4
Near New CCR Building	70	68.9
Mines Field Office	65.7	49.1
Mines Office	65.1	47.8
TPP area	69.8	65.6
Main office	68	64.3

WATER QUALITY REPORT

EFFLUENT QUALITY							
	pH	COD	BOD	Oil & Grease	S.S.	TDS	Remark
STP (treated)	7.07	40.2	3.80	0.05	4.80	722	
Mines Work Shop (treated)	8	52.2	6.20	0.2	5.6	538	
TPP DM Plant back wash (RO installed)	5.57	8.03	< 2.0	< 0.02	<2.0	26	

Note: All parameters are in mg/l except pH.

MONTH –January- 2018

AMBIENT AIR MONITORING REPORT

Monitoring Station	Avg. PM ₁₀ (µg/m ³)	Avg. PM _{2.5} (µg/m ³)	Avg. SO ₂ (µg/m ³)	Avg. NOx (µg/m ³)	Avg. CO (µg/m ³)
Khairtal Village	56.5	31.2	8.30	11.6	BDL
Kukurdih Village	61.4	34.4	8.30	21.5	BDL
Guest House	65.6	32.8	10.6	20.0	BDL
Water Treatment Plant	61.6	29.1	9.0	14.8	BDL
Mines Field Office	58.7	26.3	7.8	16.4	BDL
Railway Operation	59.4	31.4	10.7	19.2	BDL

BDL: Below Detectable level

STACK MONITORING REPORT

Monitoring Station	Particulate Matter (mg/Nm ³)
Kiln Stack (Line- 1)	11.6
Crusher Stack (Line- 1)	22.8
Cooler (Line- 1)	23.7
Coal Mill (Line- 1)	22.2
Cement Mill – 1	24
Cement Mill – 2	25.5
Cement VRPM stack	Didn't Run in the month
Cement Mill- 3	24.3
Kiln Stack (Line- 2)	18.3
Crusher Stack (Line- 2)	25.4
Coal Mill (Line- 2)	21.2
Cooler (Line- 2)	21
DG – 04 MW	Didn't Run in the month
TPP- 15 MW (Old)	Didn't Run in the month
TPP- 33 MW	24
TPP- 15 MW (New)	31.5

AMBIENT NOISE LEVEL REPORT

Location	Noise Level (dB)	
	Day Time (dB)	Night Time (dB)
Plant Canteen Area	67.4	63.1
Colony	53.2	44.6
Near Old CCR Building	70.4	70.6
Near New CCR Building	73.1	70.9
Mines Field Office	65.2	50.6
Mines Office	61.9	51.8
TPP area	68.7	64
Main office	70.7	62.6

WATER QUALITY REPORT

EFFLUENT QUALITY							
	pH	COD	BOD	Oil & Grease	S.S.	TDS	Remark
STP (treated)	7.23	83.3	5.4	< 0.2	19	728	
Mines Work Shop (treated)	7.53	27.8	4.7	< 0.2	7.2	434	
TPP DM Plant back wash (RO installed)	6.98	19.8	< 2	< 0.2	< 0.4	46	

Note: All parameters are in mg/l except pH.

ENV/EMR

MONTH –February-2018

AMBIENT AIR MONITORING REPORT

Monitoring Station	Avg. PM ₁₀ (µg/m ³)	Avg. PM _{2.5} (µg/m ³)	Avg. SO ₂ (µg/m ³)	Avg. NOx (µg/m ³)	Avg. CO (µg/m ³)
Khairtal Village	53.7	24.1	6.10	12.9	BDL
Kukurdih Village	71.9	41.2	6.99	15.2	BDL
Guest House	64.7	30.1	6.43	13.8	BDL
Water Treatment Plant	56.3	27.6	9.17	12	BDL
Mines Field Office	67.2	30.7	8.47	14	BDL
Railway Operation	70.7	24.4	8.54	12.6	BDL

BDL: Below Detectable level

STACK MONITORING REPORT

Monitoring Station	Particulate Matter (mg/Nm ³)
Kiln Stack (Line- 1)	Plant under Shutdown
Crusher Stack (Line- 1)	
Cooler (Line- 1)	
Coal Mill (Line- 1)	
Cement Mill – 1	23.4
Cement Mill – 2	20.5
Cement VRPM stack	Didn't Run in the month
Cement Mill- 3	28.7
Kiln Stack (Line- 2)	17.7
Crusher Stack (Line- 2)	24.6
Coal Mill (Line- 2)	23.4
Cooler (Line- 2)	22.5
DG – 04 MW	Didn't Run in the month
TPP- 15 MW (Old)	Didn't Run in the month
TPP- 33 MW	24.7
TPP- 15 MW (New)	31.1

AMBIENT NOISE LEVEL REPORT

Location	Noise Level (dB)	
	Day Time (dB)	Night Time (dB)
Plant Canteen Area	67.4	65.2
Colony	53.2	45.4
Near Old CCR Building	68.4	65.6
Near New CCR Building	71.2	66.5
Mines Field Office	66.4	51.3
Mines Office	66.9	52.4
TPP area	70.7	66.3
Main office	66.1	63.1

WATER QUALITY REPORT

EFFLUENT QUALITY							
	pH	COD	BOD	Oil & Grease	S.S.	TDS	Remark
STP (treated)	7.32	40	3.80	< 0.2	3	554	
Mines Work Shop (treated)	7.60	60	5.60	0.20	7	496	
TPP DM Plant back wash (RO installed)	6.30	32	< 2.0	< 0.2	3.10	684	

Note: All parameters are in mg/l except pH.

ENV/EMR

MONTH –March-2018

AMBIENT AIR MONITORING REPORT

Monitoring Station	Avg. PM ₁₀ (µg/m ³)	Avg. PM _{2.5} (µg/m ³)	Avg. SO ₂ (µg/m ³)	Avg. NOx (µg/m ³)	Avg. CO (µg/m ³)
Khairtal Village	58.2	31.8	6.90	16.9	BDL
Kukurdih Village	67.1	39.6	6.99	11.3	BDL
Guest House	64.9	30.2	7.30	13.3	BDL
Water Treatment Plant	69.6	38.1	7.50	15	BDL
Mines Field Office	58.3	29.6	10.9	17.4	BDL
Railway Operation	73.2	33.9	9.10	19.6	BDL

BDL: Below Detectable level

STACK MONITORING REPORT

Monitoring Station	Particulate Matter (mg/Nm ³)
Kiln Stack (Line- 1)	23.3
Crusher Stack (Line- 1)	26.5
Cooler (Line- 1)	22.9
Coal Mill (Line- 1)	26.9
Cement Mill – 1	28.2
Cement Mill – 2	23.5
Cement VRPM stack	Didn't Run in the month
Cement Mill- 3	23.9
Kiln Stack (Line- 2)	25.3
Crusher Stack (Line- 2)	27.9
Coal Mill (Line- 2)	24.8
Cooler (Line- 2)	20.5
DG – 04 MW	Didn't Run in the month
TPP- 15 MW (Old)	Didn't Run in the month
TPP- 33 MW	24.6
TPP- 15 MW (New)	31.4

AMBIENT NOISE LEVEL REPORT

Location	Noise Level (dB)	
	Day Time (dB)	Night Time (dB)
Plant Canteen Area	66.5	57.5
Colony	52.7	44.7
Near Old CCR Building	67.9	64
Near New CCR Building	68.9	64.4
Mines Field Office	63.6	52.3
Mines Office	66.3	54
TPP area	68.4	58.3
Main office	65.9	57.2

WATER QUALITY REPORT

EFFLUENT QUALITY							
	pH	COD	BOD	Oil & Grease	S.S.	TDS	Remark
STP (treated)	7.87	27.5	3.10	< 0.2	3.20	584	
Mines Work Shop (treated)	7.49	98	8.8	< 0.2	66	388	
TPP DM Plant back wash (RO installed)	8.56	47.1	< 2.0	< 0.2	< 2.0	526	

Note: All parameters are in mg/l except pH.

ENV/EMR

Annexure III

Ground Water Monitoring Report

Ambuja Cement

REGISTERED AD

No: ACL/BU/MINE/ 2857

Dated: January 2, 2018

To,

Ministry of Environment & Forest

Paryavaran Bhavan
CGO Complex, Lodhi Road
NEW DELHI - 110003

Sub: Ground Water monitoring report of Ambuja Cements Ltd,(Unit Bhatapara).

Dear Sir

Enclosed please find herewith the Ground Water Monitoring report of **Rawan Limestone Mines** for the quarter ending December 2017 (from October -17 to December -17), in favour of M/s Ambuja Cements Limited, (Unit Bhatapara).

Thanking You,

Yours faithfully,
For Ambuja Cements Ltd.
Unit: Bhatapara



Kashi Kant Singh
Sr. Manager
(Rawan Limestone Mines)

Encl: As above

Cc: **The Member of Secretary,**
Central Ground Water Authority,
West Block-II, Wing-3 (Ground Floor, Sector-1), R.K. Puram,
NEW DELHI- 110066.

The Additional Principal Chief Conservator of Forest
Ministry of Environment Forest & Climate Change
Regional Office (West Central Zone)
Ground Floor, East Wing "New Secretary Building"
Civil lines, Nagpur - 440001

The Regional Director,
Central Ground Water Board, Reena Apartment,
2nd Floor, NH-43, Dhamtari Road, Pachpedi Naka,
Raipur (CG) - 492007.

O/C

AMBUJA CEMENTS LIMITED

(Unit - Bhatapara)

P.O.-Rawan, Tehsil : Balodabazar, Dist. : Balodabazar-Bhatapara (C.G.), Ph. : 07727-220010 to 15, Fax : 220004
(Regd. Office : P.O. : Ambuja Nagar, Taluka : Kodinar, District : Junagarh, Gujarat, 362 715)

AMBUJA CEMENTS LIMITED, UNIT: BHATAPARA**RAWAN LIMESTONE MINES
GROUND WATER MONITORING REPORT****FOR THE QUARTER ENDING DECEMBER-2017 (FROM OCTOBER -2017 TO DECEMBER -2017)**

STATION NO.	NAME OF VILLAGE& CITY	Water level October -17	Water level November-17	Water level December-17
1	Khamariya	2.86	3.56	5.51
2	Topa	2.71	3.16	4.61
3	Arjuni	3.55	3.15	3.90
4	Maldi	1.45	2.15	3.70
5	Devrani	0.58	1.33	1.78
6	Mopar	1.85	3.25	6.10
7	Rawan	1.00	2.35	4.15
8	Karmada	1.13	3.03	3.83
9	Pausari	3.13	3.33	6.33
10	Chhuiha	1.31	2.66	3.31
11	Baloda Bazar	1.70	1.80	00
12	Latua	0.98	1.58	1.73
13	Dhabadih	1.95	4.20	4.90
14	Magarchaba	1.49	1.64	4.04
15	Amera	1.40	2.05	2.70
16	Risda	0.93	1.13	1.93
17	Champa	1.85	2.30	4.50
18	Semaradih	3.35	4.70	7.10
19	Chandih	1.10	1.40	1.55
20	Khelwari	2.16	3.01	4.71
21	Kukurdih	2.30	3.50	4.75

**Kashi Kant Singh
Sr. Manager (MINES)**

AMBUJA CEMENTS LIMITED (UNIT-BHATAPARA)

RAWAN LIMESTONE MINES

Piezometer Data (Core Zone) Unit in M (bgl)

From October -2017 to December -2017

Area	Station Name	October 2017	November 2017	December 2017
ML AREA	TP-1	6.10	7.35	9.55
Plant	TP-2	3.10	3.15	3.25
Bhadrapali Pond	TP-3	2.98	3.05	3.10



Kashi Kant Singh
Sr. Manager (Mines)

The Summarized Water Quality Data for the Quarter from Oct'17-Dec'17

Parameters	Prescribed limits as per IS 10500	Khamariya DW/G	Topa TB/G	Mopar TB/G	Dhabadih DW/G	Risda DW/G	Champa HP/G	Chandi HP/G	Pausari DW/G
pH value	6.5 to 8.5	6.87	7.35	7.41	7.58	7.61	7.61	7.53	7.37
Total Dissolved solids, mg/l	2000	974	1010	494	638	862	332	1306	734
Total hardness (as CaCO ₃) mg/l	600	526.2	580.6	282.3	290.8	411.3	197.2	598.8	416
Alkalinity, mg/l	600	300	270	225	280	210	200	255	230
Chlorides (as Cl) mg/l	1000	137.1	199.9	29.2	45.5	131.6	6.92	193.9	113.8
Iron (as Fe) mg/l	0.3	<0.02	<0.02	<0.02	<0.02	<0.02	0.034	<0.02	<0.02
Fluoride (as F) mg/l	1.5	0.094	0.251	0.391	0.625	0.236	0.191	0.251	0.093
Sulphate (as SO ₄) mg/l	400	76.5	57.5	19.1	37.3	69.4	5.28	97.3	47.6
Nitrate (as NO ₃) mg/l	45	1.18	1.87	1.86	3.07	1.05	0.23	1.16	3.15
Calcium (as Ca), mg/l	200	156.5	170.2	95.9	88.4	101.6	55.8	184.7	137.8
Magnesium (as Mg)	100	32.9	37.8	10.3	16.9	38.3	14.1	33.4	17.5

BDL (Below Detectable Level)

Ambuja Cement

REGISTERED AD

No: ACL/BU/MINE/ 039

Dated: April 11, 2018

To,

Ministry of Environment & Forest

Paryavaran Bhavan
CGO Complex, Lodhi Road
NEW DELHI – 110003

Sub: Ground Water monitoring report of Ambuja Cements Ltd,(Unit Bhatapara).

Dear Sir

Enclosed please find herewith the Ground Water Monitoring of **Rawan Limestone Mines** for the quarter ending March 2018 (from January-18 to March-18), in favour of M/s Ambuja Cements Limited, (Unit Bhatapara).

Thanking You,

Yours faithfully,
For Ambuja Cements Ltd.
Unit: Bhatapara


Kashi Kant Singh
Sr Manager
Rawan Limestone Mines

Encl: As above

Cc: **The Member of Secretary,**
Central Ground Water Authority,
West Block-II, Wing-3 (Ground Floor, Sector-1), R.K. Puram,
NEW DELHI- 110066.

The Additional Principal Chief Conservator of Forest
Ministry of Environment Forest & Climate Change
Regional Office (West Central Zone)
Ground Floor, East Wing "New Secretary Building"
Civil Lines, Nagpur - 4440001

The Regional Director,
Central Ground Water Board, Reena Apartment,
2nd Floor, NH-43, Dhamtari Road, Pachpedi Naka,
Raipur (CG) - 492007.

9/c

AMBUJA CEMENTS LIMITED

(Unit - Bhatapara)

P.O.-Rawan, Tehsil : Balodabazar, Dist. : Balodabazar-Bhatapara (C.G.), Ph. : 07727-220010 to 15, Fax : 220004
(Regd. Office - P.O. : Ambuja Nagar, Taluka : Kodinar, District : Junagarh, Gujarat. 362 715)

AMBUJA CEMENTS LIMITED, UNIT: BHATAPARA

RAWAN LIMESTONE MINES

GROUND WATER MONITORING REPORT

FOR THE QUARTER ENDING MARCH-2018 (FROM January -2018 TO March -2018)

STATION NO.	NAME OF VILLAGE& CITY	Water level January -18	Water level February-18	Water level March-18
1	Khamariya	6.96	8.01	0.00
2	Topa	7.06	8.11	8.56
3	Arjuni	6.30	7.15	8.50
4	Maldi	5.20	6.15	6.50
5	Devrani	2.13	3.13	3.88
6	Mopar	0.00	0.00	0.00
7	Rawan	4.50	0.00	0.00
8	Karmada	0.00	0.00	0.00
9	Pausari	8.28	9.48	0.00
10	Chhuiha	3.71	0.00	0.00
11	Baloda Bazar	0.00	0.00	0.00
12	Latua	1.93	2.23	5.13
13	Dhabadih	5.55	5.70	8.30
14	Magarchaba	4.39	4.84	5.74
15	Amera	2.90	4.15	5.10
16	Risda	2.48	3.38	4.38
17	Champa	5.05	0.00	0.00
18	Semaradih	0.00	0.00	0.00
19	Chandih	3.85	4.70	0.00
20	Khelwari	8.01	0.00	0.00
21	Kukurdi	5.55	5.95	6.85


11/4/18

Kashi Kant Singh
Sr Manager (MINES)

AMBUJA CEMENTS LIMITED (UNIT-BHATAPARA)

RAWAN LIMESTONE MINES

Piezometer Data (Core Zone) Unit in M (bgl)

From January -2018 to March -2018

Area	Station Name	January 2018	February 2018	March 2018
ML AREA	TP-1	17.43	18.35	18.55
Plant	TP-2	3.11	3.72	3.82
Bhadrapali Pond	TP-3	3.55	3.75	3.85



**Kashi Kant Singh
Sr Manager (Mines)**

Appendix

EC Letter

J-11015/ 330/ 2006- IA.II(M)
Government of India
Ministry of Environment & Forests

Tel no. 24363973
E mail: plahujarai@yahoo.com
Paryavaran Bhavan, C.G.O. Complex,
Lodi Road, New Delhi-110003.
Dated the June 8, 2007

To

The President
M/s Ambuja Cement Eastern Limited
P.O. Rawan, Tehsil Baloda Bazar,
District Raipur 493331

Sub: Rawan Limestone mines of M/s Ambuja Cement Eastern Limited at P.O Rawan, Tehsil Baloda Bazar in district Raipur in Chhatisgarh - reg environmental clearance.

Sir,

The undersigned is directed to refer to your letter no. nil dated 17.10.2006 and subsequent communication dated 25.5.2007 on the above mentioned subject seeking environmental clearance. The Ministry of Environment and Forests has examined the application.

2. It is noted that the proposal is for seeking environmental clearance for capacity expansion of Rawan Limestone Mine from existing limestone production capacity of 2.06 million tonnes per annum to 6.31 Million tones per annum. The mine is captive to cement plant located at a distance of 1.5km. Environmental clearance to the cement plant has been accorded on 13.4.2007. Lease area of the mine is 420.95 ha, which comprises government waste land and private agricultural land. Out of 324 ha of private land, 100 ha of land has been purchased at price on mutually agreed basis. No forest land is involved. Out of 420.95 ha of the lease area, 275.77 ha is proposed for mining, 39.84 ha for OB, screen rejects and soil dumps, 0.5 ha for infrastructure, 3.75 ha for roads, 58.20 ha for green belt while 42.89 ha area will remain undisturbed. The highest and lowest elevation is 268 M and 260 M above MSL respectively. Topography of the area is flat and gently undulating. Life of the mine is 21 years. No ecologically sensitive area such as national park/sanctuary/Biosphere reserve/tiger reserve etc is located within 10km radius of ML area. Method of mining is opencast and fully mechanized. Drilling and controlled blasting is involved. Water requirement of 150 m³/d will be met from the mine sump/pit. Range of water table in the core zone in pre-monsoon and post monsoon is 18-30 m b.g.l (250-230 MRL) and 12-24 m b.g.l (256-236 MRL) respectively. Present working depth of mine is 30 m at about 235 MRL and ultimate depth is also 30 m at about 235 MRL. As per the hydrogeological study carried the water yield is low to medium. Dynamic and static reserves are 6.43 m³ /annum and 32m³/annum respectively. The radius of influence due to ground water seepage would be 80m. All the villages are located at a distance of 500m.

About 1.92 lakh m³ of top soil and 1.19 million m³ of overburden and screen rejects etc. will be generated during next 5 years. During the entire life of the mine, waste generation including the existing waste will be about 4.98 million m³, which will be kept as an external OB dump. Waste will be disposed of in the non-mineralized area. The area required for the waste dump is 39.84 ha with two terrace of 10 m height each. The dump will be stabilized by vegetation. At the end of the mining life, about 98.04 ha of area will be covered under plantation including plantation over waste dumps. It is noted that Public hearing of the project was held on 11.12.2006. IBM has approved the modification in approved scheme of mining along with progressive mine closure plan on 2.3.2007. Cost of the project is Rs. 2236 lakhs.

3. The project has been considered in accordance with the para 2.2 (2.2.1(i) (a)) interim operational guidelines of the Ministry issued on 13th October 2006 by the Ministry of Environment and Forests under Para 12 of the EIA Notification 2006.

4. Based on the information submitted by you, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14th September 2006 subject to the compliance of the following Specific and General conditions:

A. Specific conditions

- (i) Top soil shall be stacked properly with proper slope with adequate safeguards and shall be backfilled for reclamation and rehabilitation of mined out area.
- (ii) Over burden shall be stacked at earmarked dump site(s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 20 m, each stage shall preferably be of 10 m and over all slope of the dump shall not exceed 26°. The reverse slope shall be maintained to prevent wash off and water logging during rainy season. The mine pit area shall be reclaimed by back filling the OB in a phased manner. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests on six monthly basis.
- (iii) Garland drains shall be constructed to arrest silt and sediment flows from soil, and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.

Garland drain (size, gradient and length) shall be constructed for both mine pit and for waste dump and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.

- (iv) Controlled drilling and blasting shall be by using dust extractors/wet drilling.
- (v) Plantation shall be raised in an area of 98.04 ha including green belt of adequate width by planting the native species around the ML area, roads, OB dump sites etc. in consultation with the local DFO / Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- (vi) The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (vii) Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year - pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to MOEF, Central Ground Water Authority and Regional Director Central Ground Water Board.
- (viii) Prior permission from the competent authority shall be obtained for drawl of ground water ,if any.
- (ix) Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles shall be covered with a tarpaulin and shall not be overloaded.
- (x) A Final Mine Closure Plan, along with details of Corpus Fund, shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

B. General conditions

- i. No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests.

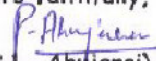
- ii. No change in the calendar plan including excavation, quantum of mineral limestone ore shall be made.
- iii. Conservation measures for protection of flora and fauna in the core & buffer zone shall be drawn up in consultation with the local forest and wildlife department.
- iv. Four ambient air quality-monitoring stations shall be established in the core zone as well as in the buffer zone for RPM, SPM, SO₂, NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.
- v. Data on ambient air quality (RPM, SPM, SO₂, NO_x) should be regularly submitted to the Ministry including its Regional office located at Bhopal and the State Pollution Control Board / Central Pollution Control Board once in six months.
- vi. Fugitive dust emissions from all the sources shall be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points shall be provided and properly maintained.
- vii. Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. shall be provided with ear plugs / muffs.
- viii. Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.
- ix. Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.
- x. Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

- xi. A separate environmental management cell with suitable qualified personnel shall be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
 - xii. The project authorities shall inform to the Regional Office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
 - xiii. The funds earmarked for environmental protection measures shall be kept in separate account and should not be diverted for other purpose. Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bhopal.
 - xiv. The project authorities shall inform to the Regional Office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
 - xv. The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
 - xvi. A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.
 - xvii. State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and Collector's office/ Tehsildar's Office for 30 days.
 - xviii. The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same shall be forwarded to the Regional Office of this Ministry located Bhopal.
5. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

6. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

7. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

Yours faithfully,


(Dr. P. L. Ahujarai)
Director

Copy to:

1. Secretary, Ministry of Mines, Government of India Shastri Bhawan, New Delhi.
2. The Principal Secretary, Environment, R. No. 153 Dau, Kalyan Singh Bhawan, Secretariat, Government of Chhattisgarh, Raipur-492001
3. Secretary, Department of Mines and Geology, Government of Chhattisgarh, Raipur.
4. Chairman, Chhattisgarh Environment Conservation Board, Nanak Niwas, Civil Line, Raipur.
5. Secretary, Department of Forests, Government of Chhattisgarh, Raipur.
6. Chief Wildlife Warden, Government of Chhattisgarh, Raipur.
7. Chairman, Central Pollution Control Board, CBD-Cum-Office Complex, East Anjun Nagar, New Delhi-110 032.
8. Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office, E - 3 / 240, Arera Colony Bhopal - 462 016.
9. Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
10. Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
11. District Collector, Raipur district, Chhattisgarh.
12. EI Division, Ministry of Environment & Forests, EI Division, New Delhi.
13. Monitoring File.
14. Guard File.
15. Record File.

(Dr. P. L. Ahujarai)
Director